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CASE REPORT

Laryngeal carcinoma in a 13-year-old child

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Summary Malignant tumors of the larynx are rare in children and adolescent. Usually these patients are diagnosed in late stages. Numerous factors contribute towards a late diagnosis of laryngeal malignancy in childhood. These include rarity, the similarity of its early symptoms to those of other benign, common childhood condition as well as the relative difficulty encountered during pediatric laryngeal examination. Controversy exists regarding the predisposing factors of these childhood cancers. Contemporary reports indicate that most pediatric malignant laryngeal tumors tend to be derived from mesodermal tissue contrasted with earlier reports which emphasized its relationship with the radiation therapy treatment to benign lesions. We believe that these cases are of sufficient interest when they occur to warrant reporting since the consequences of late diagnosis in these can be serious. We present a case of a 13-year-old tracheostomized boy with advanced squamous cell carcinoma of the larynx.

Introduction

Head and neck malignancy is most common in adults than in children. Nevertheless, physicians must be aware that a small percentage of cases do occur in the pediatric age group. If one examines large institutional reviews and case reports in patients less than 15 years of age, laryngeal cancers accounts for less than 0.1% of all head and neck malignancies.[1–3]

Case report

A 13-year-old, tracheostomized male boy referred to our head and neck clinic in April 2005 with a 6-month history of progressive hoarseness of voice and breathing difficulty, Fig. 1. He was seen in peripheral centers and was diagnosed as juvenile laryngeal papilloma 6 months back. He was

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Figure 1 A 13-year-old tracheostomized child on radiation therapy.

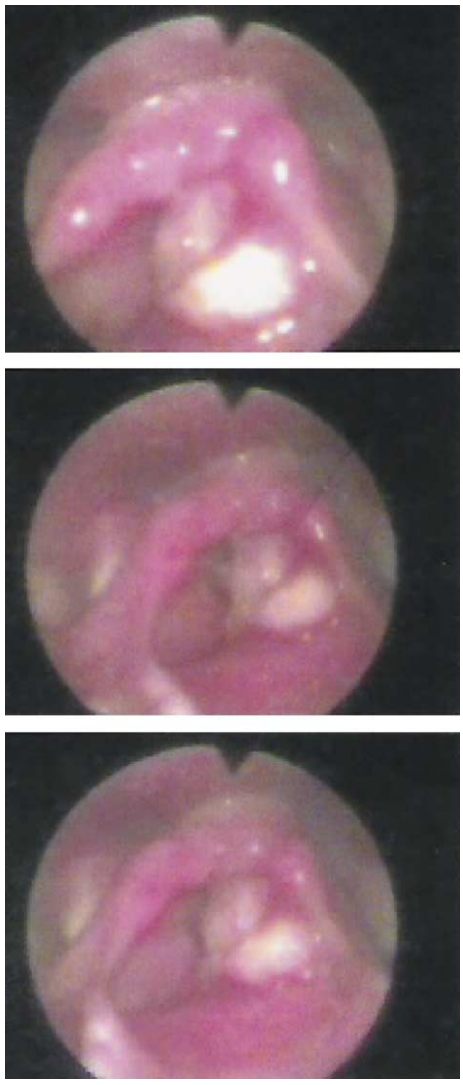

Figure 2 Video endoscopy showing pinkish growth involving left supraglottic larynx, left cord is fixed.

followed intermittently for this problem without much change rather progression of symptoms. Two months back he came to the Department of Otolaryngology with the complaints of stridor for which a tracheostomy was performed. Thereafter, he was subjected for direct laryngoscopy and biopsy of the growth. Direct laryngoscopic examination revealed a smooth, pink, exophytic mass involving the left supraglottic larynx, which has covered the entire left Supraglottis and glottis with fixation of left vocal cord Fig. 2. The remainders of the examinations like routine hematological investigations, chest skiagram and USG abdomen were normal. There was no neck node palpable. Histologic examination revealed a moderately differentiated squamous cell carcinoma. There was a history of continuous tobacco chewing for the past 2 years, however he denied use of alcohol, or any unusual exposure to known carcinogens such as asbestos, chemicals, or irradiation. He was not an active smoker, but used to be confined in the circle of people with continuous smoking habits. There was no family history of carcinoma or any known genetic abnormality associated with the development squamous cell carcinoma in childhood. His past medical history was unremarkable. It was concluded that the patient had a T3N0M0, stage III moderately differentiated squamous cell carcinoma of left Supraglottis. After receiving motivational counseling and desire to preserve the laryngeal function, the patient was subjected for definitive radiotherapy. He has been planned for radiation therapy by parallel and opposing lateral portals for up to 70 Gy (sparing of spinal cord after

46 Gy) by Theratron 780 E tele cobalt machine Fig. 1.

Discussion

Carcinoma of laryngo-pharynx are rare in children. Rehn reported the first case of squamous cell carcinoma of the larynx in a child in 1868.[4] The majority of cases reported in children presented with prolonged symptoms of hoarseness or upper airways obstruction.[2–7] Frequently a delay in the diagnosis was reported with symptoms attributed to vocal changes during puberty, recurrent upper respiratory tract infection or vocal abuse. The majority of these children presented with extensive disease at the time of diagnosis. The delay highlights the importance of adequate visualization of the larynx in children presenting with dysphonia or other symptoms suggestive of laryngeal pathology. Mirror examination of the larynx by indirect laryngoscopy is often difficult in children. The larynx can usually be adequately assessed by Trans nasal flexible laryngoscopy under local anesthetic. A high index of suspicion is necessary to diagnose cancer of the larynx in pediatric patient. The definitive diagnosis of all benign and malignant lesions is based on endoscopic findings and the results of pathological examination of biopsy specimen. An extensive review of the literature indicated that the principal predisposing factor reported for the development of squamous cell carcinoma of the larynx is irradiation of a benign lesion of the head and neck, especially juvenile laryngeal papilloma.[8,9] In the Mayo Clinic series of 101 cases of laryngeal papilloma, 6 of 43 (14%) treated with radiation developed SCC of the larynx before 30 years of age, while this does not occur in any of the 58 similar cases treated with surgery alone.[8] Other known risk factors include active and passive smoking, exposure to certain chemical agents (e.g. asbestos) and a family history of malignant tumors. Immunodeficiency can impair the control of human papilloma virus (HPV) infection, and co infection with HPV 18 and HPV 33 is not uncommon in cases of Laryngeal cancer.[6] Other than present case, in only one pediatric case has the most common risk factor for the adult cancer of the larynx has been identified. One 13-year-old boy with papilloma had smoked half a pack of cigarette per day for three years[10]—a minimal exposure by adult standards, but the effect on juvenile papillomas has not been studied in details. The differential diagnosis of laryngeal neoplasm in children includes: papillomas, subglottic hemangiomas, squamous carcinoma, rhabdomyosarcoma, and adenocarcinoma of minor salivary gland. Specific treatment details of the cases reported in literature are incomplete. They have been treated commonly with surgery, radiation therapy or both and less commonly with chemotherapy. Overall the management of children with laryngo-pharyngeal carcinoma remains a challenge because psychosocial aspects are also associated. It is more difficult to explain to young patients the nature of their disease, the type of treatment that is going to be performed, and it is after effects. Accurate and early diagnosis of children presenting with symptoms suggestive of laryngeal pathology is essential. Long-term complications of local therapy are important in young children but definitive local therapy is essential for a tumor control.

Conclusion

Malignant tumors of the larynx are rare in children. Delay in the diagnosis is common because the presenting symptoms may be mistaken for benign laryngeal or inflammatory airway disease. Factors associated for the causation in such a young age is still unclear. Malignancies of larynx are more aggressive in children than in adults, probably because they are recognized at a later stage. The current literature is unhelpful in treatment planning and treatment should therefore be individualized.

Finally, although unusual, one should have a high index of suspicion for any hoarseness, cough, or upper airway disease that does not respond to appropriate medical treatment. By reporting this case and highlighting the difficulties in diagnosis and treatment we hope to increase clinical awareness and thus lead to an improved outcome.

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